



Hormonal effects on sex and gender

This activity will help you to...

- Understand the effects of hormones on typical and atypical sexual development
- Consider the extent to which gender characteristics are affected by biology

Atypical sexual development

Testosterone insensitivity

Some people inherit a gene that makes their bodies insensitive to the effects of testosterone. The individual inherits a Y chromosome and develops testes as would normally happen. However, the body does not respond to the testosterone produced by the testes and so none of the subsequent male changes occur. Their external genitalia are female in appearance but they have testes where an XX individual would have ovaries. Their atypical biology may not be detected until puberty, when they do not start menstruating.

Androgenital syndrome

Some people develop in a prenatal environment where levels of testosterone are excessive. This can cause an individual with XX chromosomes to develop in a male direction. At birth, their genitalia may be ambiguous (i.e. not completely either male or female) so the clitoris may be abnormally enlarged, or they may even have a penis. Identification of such individuals as XX is now much more reliable than in the past so they are usually assigned female sex at birth. Generally, their internal sexual organs are female and only minor cosmetic surgery is required to create external genitalia consistent with this.

Studies of the effects of hormones on gender identity & role

Imperato & McGinley (1979) report a case study of a group of males from the Dominican Republic. Due to a genetic abnormality, some families produce XY offspring with completely female external genitalia. They are raised as girls until puberty when increases on the level of testosterone they produce cause them to change into men (their vaginas heal over and they grow penises). These men subsequently adopt male identities and roles, get married and raise families.

Gorski et al (1985) injected female rats with testosterone for a period prior to birth. The rats developed ambiguous genitalia (e.g. enlarged clitoris) and parts of their brains closely resembled those of male rats. Their behaviour was also masculinised: although female, treated rats would attempt to mount other females as male rats do.

Some questions to help you comment on and evaluate the biological theory

1. How do these studies support the idea that gender role and identity are influenced by biological factors?
2. Suggest some reasons why it might be wrong to draw any firm conclusions from these studies.
3. Using your textbook, find and make notes on some additional evidence for the role of biological influences (e.g. hormones) on psychological and behavioural differences between women and men.